

TARC News

Volume 2 ISSUE 3 September 2022

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Editor Tom Fuller



Making Yourself Heard on the T.A.R.C. Mosquito Net



Some time back when I learned of the T.A.R.C. Mosquito net, I decided I wanted to join. Further, I learned that the signal was vertically polarized making use of ground waves for our local net. So, I decided I needed two things to make this happen, and they were: A good radio and a good, vertically polarized 10Mtr antenna.

Since I already had a good radio, I started looking for a suitable, base station 10Mtr antenna that was vertically polarized.

My search criteria weren't too stringent since all I was after was a vertically polarized antenna with reasonably low SWR across the band and a bit of gain. After a bit of research, I settled upon the Diamond CP610 which in fact is a dual band, 10Mtr / 6Mtr, base station antenna.

Hands up here, in full disclosure, this is actually my 3rd Diamond CP610 antenna. I lost parts to my first one in my move to Stephanie's (K4MVO) house after we got married and the second one, I gave to my brother Bob, KJ4OHO. This third antenna has actually sat idly by on our porch for some time waiting to be assembled and put up, but for one reason or another, kept getting put off. Anyway, I found my box of round-too-its and low and behold I assembled and put the antenna up this past weekend.

Below I will briefly describe putting the antenna together, which is really very easy to do, but first a word from our sponsors... Just kidding, but some antenna specifications as provided by Diamond is in order, they are:

- Frequency range: 28 - 29.7Mhz / 50 – 53Mhz
- Gain: 3.4 dBi on the 10Mtr band and 5.5 dBi on the 6Mtr band.
- Max power rating: 500W on SSB, 200W on FM. CW is about 1/3rd the power of SSB.

- VSWR: Less than 1.5
- Impedance: 50 Ω
- Length: 6.8 Meters (I measured mine at 21' – 2")
- Weight: Approximately 2.9Kg (I was able to handle the antenna myself)
- Maximum wind resistance: 79MPH
- Radial element length: 1.8m for the 10Mtr band and 1.5m for the 6Mtr band
- Antenna type: 5/8th wave on 10Mtrs and 2 x 5/8th wave on the 6Mtr band

OK, we have the specifications above which ticks all the boxes for an antenna I was looking for at a reasonable price point.

When you open the box, you'll find all the parts neatly wrapped in plastic. I suggest you do not remove them from the plastic until you've laid them out and accounted for all the pieces. Also, it makes it much easier to put the thing together as the parts are logically grouped together. Two other notes here, the instructions are in Japanese and English and none of the parts are labelled as per the drawing. There is a good drawing that shows how the antenna goes together and this drawing has part names and labels, but the parts themselves do not have labels. Now, having said that, it would be really hard to mess up putting this thing together, although I am sure some have tried. I found I had to read through the instructions several times to get to grips with the order that they wanted the antenna assembled. After that, it was kinda easy. I must admit however, that I stumbled on one step as I did not understand what parts they were referring to, but I was able to quickly resolve the issue and finished up the assembly.

The tools I used to assemble the antenna was a Philips head screw driver, a #10 nut driver (or pliers), a #10 wrench and some black electrical tape. I also used Jet-Lube SS-30 Pure Copper Lubricant on the parts that slid together as well as the screw threads. Below are a few pictures of the final assembly where the vertical element is mated to the feed-point assembly and the counterpoise elements are added to. Here, like the other connections, you can see I used a generous amount of SS-30.



Figure 1. Feed point assembly and Radial ring. Note the generous application of SS-30 to the mating part of the Feed point assembly.



Figure 2. The Vertical element mated to the Feed point assembly. Two #10 hex nuts secure the two together.



Figure 3. 10Mtr counterpoise element installed along with the two 6Mtr counterpoise elements. NOTE the position of the drain hole on the 10Mtr coil. It must face downwards.

OK, so following the directions I completed the assembly and mounted the antenna onto an aluminum section of mast I found in my junk pile. I will point out here, that there are only two measurements to be made in putting this antenna together and both are critical, so make sure you pay particular attention to instructions in step 1 and 2. In step one, you deal with the length of the counterpoise element of the 10Mtr antenna and 690mm or 6.90cm if you prefer, should be adhered to. Measure this carefully. Secondly, in step two, the mating of pipe # 3 and Pipe #4 is critical as this determines the center frequency of resonance. There are graphs provided that show you the result of mating these two pipes together so you can decide pretty much where you want the sweet spot to be on your installation. I went with 7cm as this puts the center frequency right near where the Mosquito net operates. Of course, you are free to experiment and find your own center frequency using the graphs as a guide, depending on how you want to use the antenna. But remember, this measurement affects both the 10Mtr AND 6Mtr resonant frequency. So, now I have the antenna assembled, connected to a transmission line and mast and erected and ready for testing. To test the antenna, I used my RigExpert AA-230 ZOOM device. Connecting to the patch panel in my shack, I got the below reading for the 10Mtr and 6Mtr bands. Figure 4 shows the SWR for the entire 10Mtr band while Figure 5 shows the SWR at 28.330Mhz. Figure 6 shows the SWR I obtained on 6Mtrs.

2 Meter simplex

Monday 7pm

144.210

Sky Warn Net

Tuesday at 7pm

146.97

Mosquito Net

Wednesday at 7pm

28.333 USB

Friendship Traders Net

Thursday at 7pm

146.97

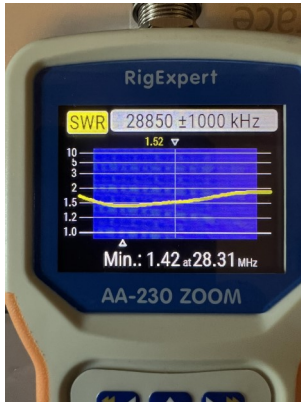


Figure 4. SWR graph of the 10Mtr band. I found that this output pretty much agrees with the expected SWR output from the manufacturers graph

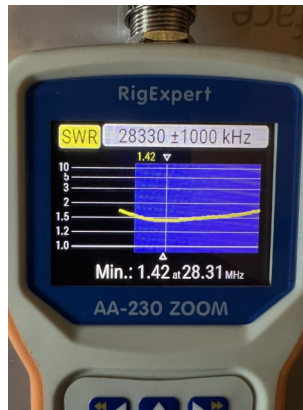


Figure 5. SWR graph showing the SWR at 28.220Mhz. Close to our 28.333Mhz Mosquito net.

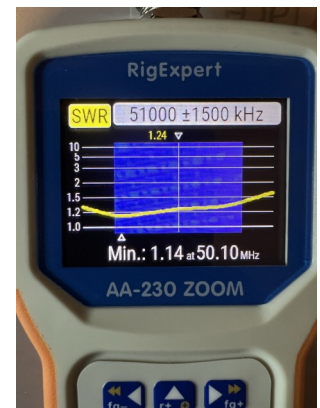


Figure 6. SWR graph for 6Mtrs

How does it do in operations? Tom Fuller, KN4GLO kindly took a few minutes from his busy schedule to have a QSO with me and gave me a glowing report. Running full power on my Icom 7300, I was putting out an excellent signal with excellent audio quality. I then tried the contact using my Icom 705 at 10 watts. While I had a good solid signal, the audio was low. Either I need to mess around a bit more with my ALC/COMP setting or just accept that 10 watts is ... well 10 watts. Next, I contacted Dave McLean, KY4F and after fiddling with his microwave cooker, he too gave me an excellent report also. I do not have the tools or really the experience to be able to produce a Smith graph showing the take off angles and radiation pattern, but if I can hit both Tom, furthest away and Dave, closest to me, then I am happy. All-in-all it is early days and I have done only limited testing, but so far, I am happy with the antenna and results.

Roy Merritt N4RKM

Changes to the By Laws

Last month I discussed changes we should make to the club By Laws in order to make a better functioning organization.

The first amendment will read as follows;

The board of directors will meet twice a year. Once in January before the January general club meeting. And again in July before the July general club meeting.

The second amendment will read as follows;

Should a Board member not participate in Board meetings for a period of 1 year his or her seat will be considered open and vacant, and a new Board member will be elected.

The third amendment will read as follows;

All Dues will be collected in January. A quarterly adjustment will be made for new members joining the club during the year.

We will vote on these amendments at the next club meeting.

I also brought up defining our club mission.

In the past we have been focused on emergency response. But due to changes in local policies this is no longer the

focus of our club .

Here are a few headings for our club.

Emergency Response

Education

Contesting

Social Club

It can be any or all of these, but we need to decide .

The reason for this is the use of club equipment.

The TARC trailer would be set up differently for Emergency Response as apposed to contesting, and so on.

Club Web Site

Our web site is stagnant and needs to be brought up to date. We have a lot of information on repeaters and antennas but nothing about what we do as a club. I need someone to tackle this job and make our club something people see on the internet and want to get involved.

Involvement is the key to any club the more YOU put into it the more enjoyment you get out of it.

Tom Fuller President
KN4GLO

Minutes for August 2022

Meeting was brought to order at 7pm. Pledge was said and introductions done.

Tom discussed the proposal to move all dues to be paid in January. Plus to have two mandatory board meetings each year. One in January and one in July. If you haven't been active as a board member for over a year then you'll be replaced.

All of these ideas have been brought up at two meetings and published in two news letters. They will be voted on at the September meeting.

There will be a work day at the water tower on Saturday August 27, 2022 at 10:00 AM. We will be removing all the equipment in the building. The tower is scheduled to be torn down sometime in the future.

Roy Merritt did a talk on ways to get on the air from anywhere. He brought all kinds of equipment and explained how they were used and different ways to accomplish it. It was a very interesting presentation. Thank you Roy!

Sally Fuller / Secretary
KN4HPX

Name Tags

Barry Kennedy
N4NMF is taking
orders for name
tags. These are
very nice and come
in several different
designs.
Contact Barry at
n4nmf@outlook.com

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2



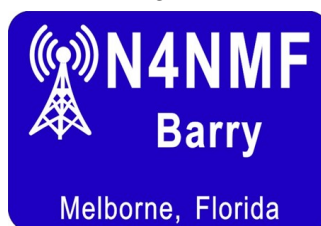
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SEPTEMBER 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		Sky Warn Net 7pm 146.97	Mosquito Net 7pm 28.333	1 Friendship Traders Net 7pm 146.97 Eating Meeting	2	3
4	5	6 Sky Warn Net 7pm 146.97	7 Mosquito Net 7pm 28.333	8 Friendship Traders Net 7pm 146.97 Eating Meeting 5pm	9	10
11	12	13 Sky Warn Net 7pm 146.97	14 Mosquito Net 7pm 28.333	15 Friendship Traders Net 7pm 146.97 Eating meeting 5pm	16	17
18	19	20 Sky Warn Net 7pm 146.97	21 Mosquito Net 7pm 28.333	22 Friendship Traders Net 7pm 146.97 Eating Meeting 5pm	23	24
25	26	27 Club Meeting 7pm	28 Mosquito Net 7pm 28.333	29 Friendship Traders Net 7pm Eating Meeting 5pm	30	